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Systemic potency of fluticasone in asthma

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Title: Systemic potency of fluticasone in asthma

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We read with interest the data from Majers et al [1] suggesting that in a post hoc analysis of trials in oral corticosteroid (OC) dependent asthma, the majority of the OC sparing effects of high-dose inhaled corticosteroids are due to their systemic effects. The meta-regression estimates showed a prednisone (Pred) decrease of 4.9mg per 1.0mg increase in fluticasone propionate (FP) dose. This was based on the premise from an analysis of two studies where 1.0mg FP was equivalent to 5.0mg Pred for cortisol suppression, although this was only calculated in reference to a 10mg dose of Pred. A ratio of 1.02 was then inferred for the proportion of the OC sparing effect due to systemic absorption of FP.

In a prospective randomized controlled dose response comparison of placebo, Pred (5mg, 10mg, 20mg/day) and FP (0.44, 0.88, 1.76mg/day ex actuator) we calculated a relative dose potency for cortisol suppression of 8.5:1.0mg comparing Pred vs FP in adult asthma patients.[2] In turn the calculated systemic absorption ratio for FP would be 1.73 for OC sparing. Assuming part of the OC sparing effect of FP is due to suppression of type 2 inflammation, in the same dose response study the relative dose potency for blood eosinophil suppression was 5.3:1.0mg which would result in a systemic absorption ratio of 1.08 for FP.[2] In a meta-analysis of 21 studies the relative dose related cortisol suppression was 4.3 fold greater for FP than budesonide.[3] We would therefore concur with Majers et al that use of high dose FP requires similar considerations as starting maintenance low-dose Pred.

References

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